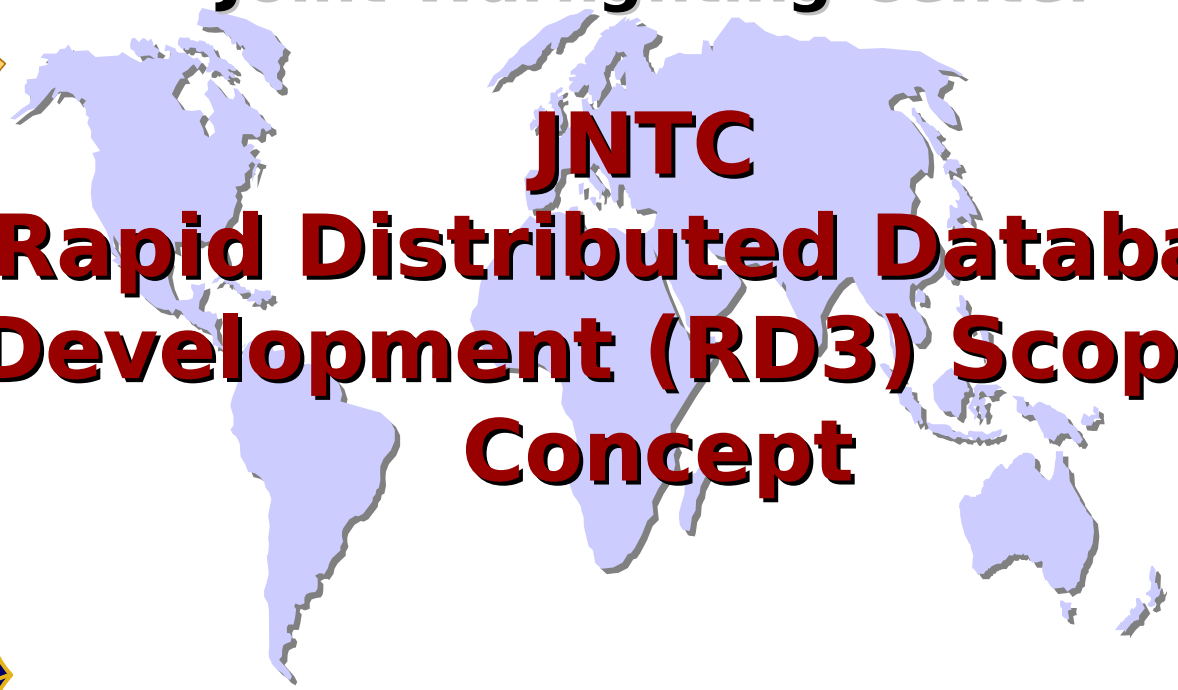
# United States Joint Forces Command
# Joint Warfighting Center



# JNTC
# Rapid Distributed Database Development (RD3) Scope & Concept

**Warren Bizub**
**JNTC Advanced Training Technology Manager**
**USJFCOM JWFC**
**757-686-6969**

# Agenda

- JNTC Technical Overview
- RD3 Requirement Background
- Approach, Plan, & Concept

# Key References

**USJFCOM will….lead the development and operations of systems and architectures that directly support the distributed joint training requirements of other combatant commands, Services, and Defense agencies**

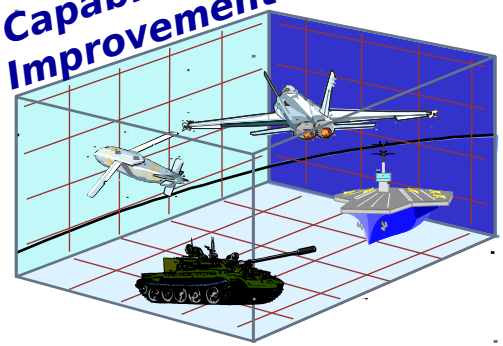
**Unified Command Plan**

**JNTC system engineering will produce a … global, multinational network of constructive computer simulations, man-in-the-loop virtual simulators, and live forces at instrumented ranges will provide a training and mission rehearsal environment that supports a broad spectrum of joint and service training.**

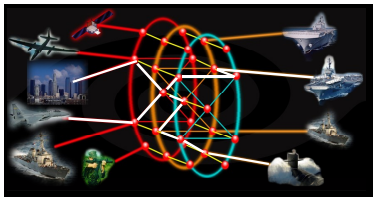
**Training Transformation Implementation Plan**

# Joint National Training Capability

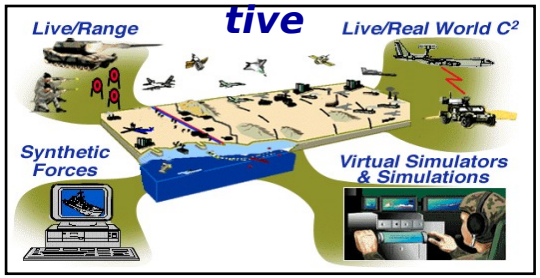
Capabilities Improvement



Experimentation and Testing

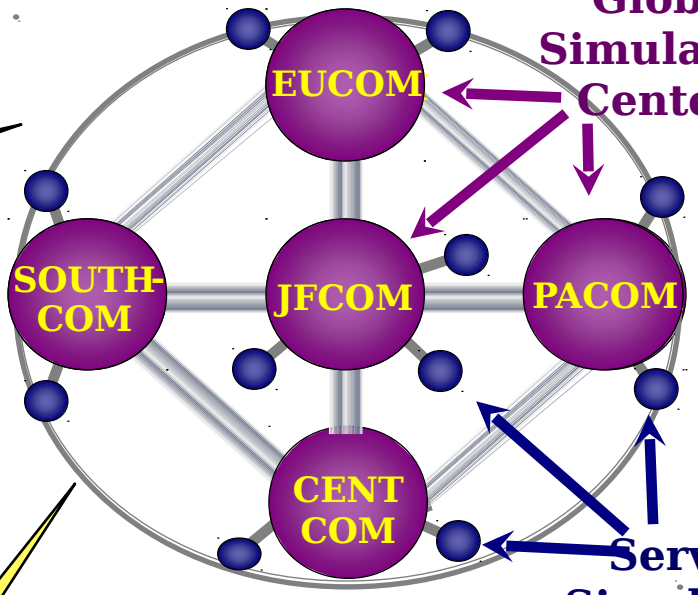


Live/Virtual/Constructive




Training Environment

Global Simulation Centers

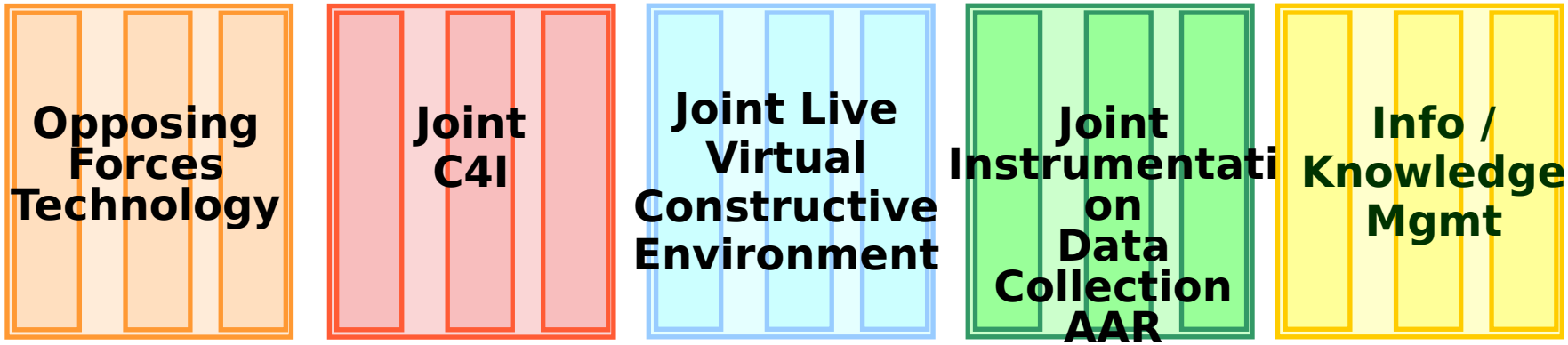



Service Simulation, Training and Testing Centers

## JNTC Concept

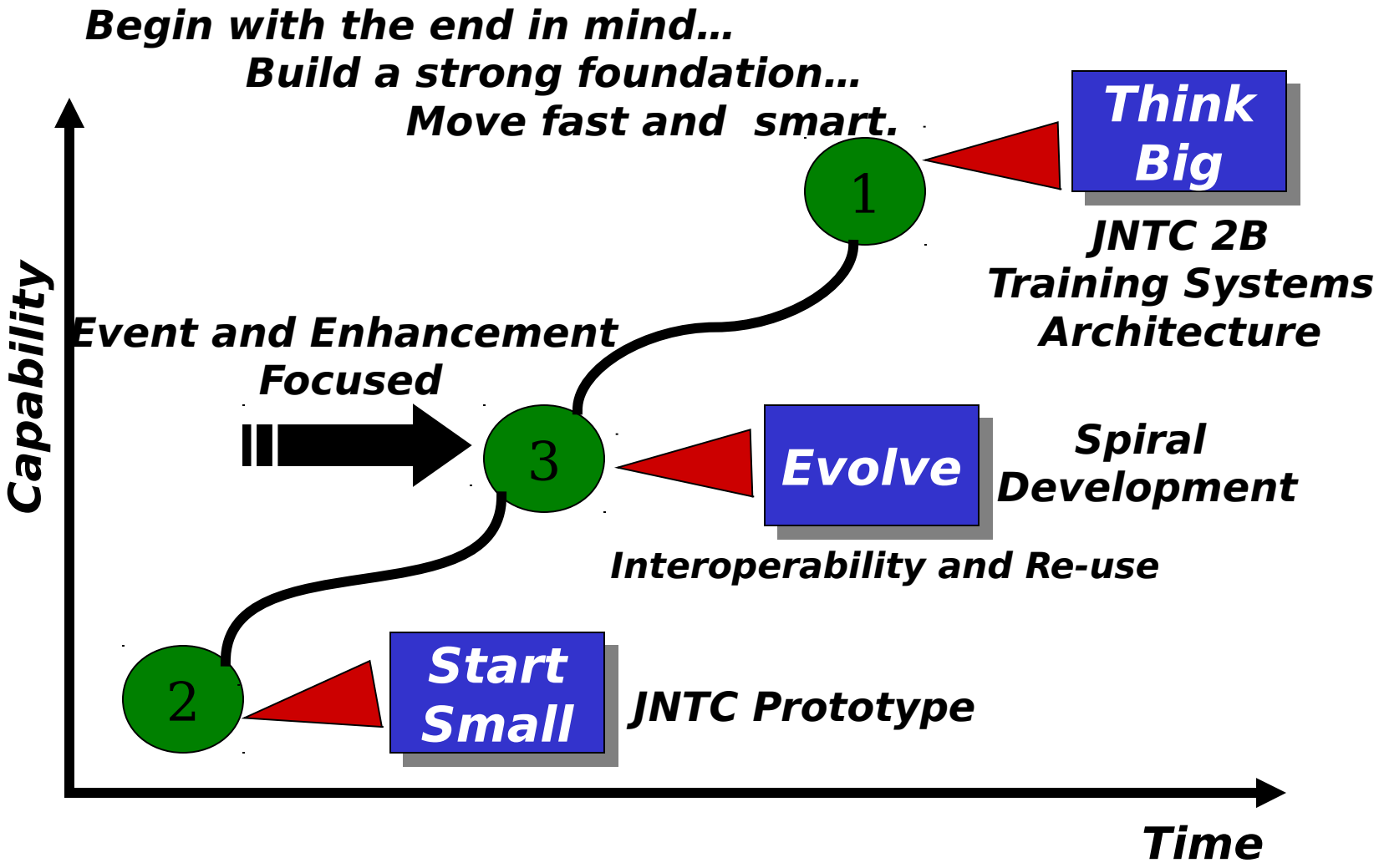
**A global network of live, virtual and constructive components that provides a seamless training environment that supports a broad spectrum of joint and Service training**

# Technical Focus Areas

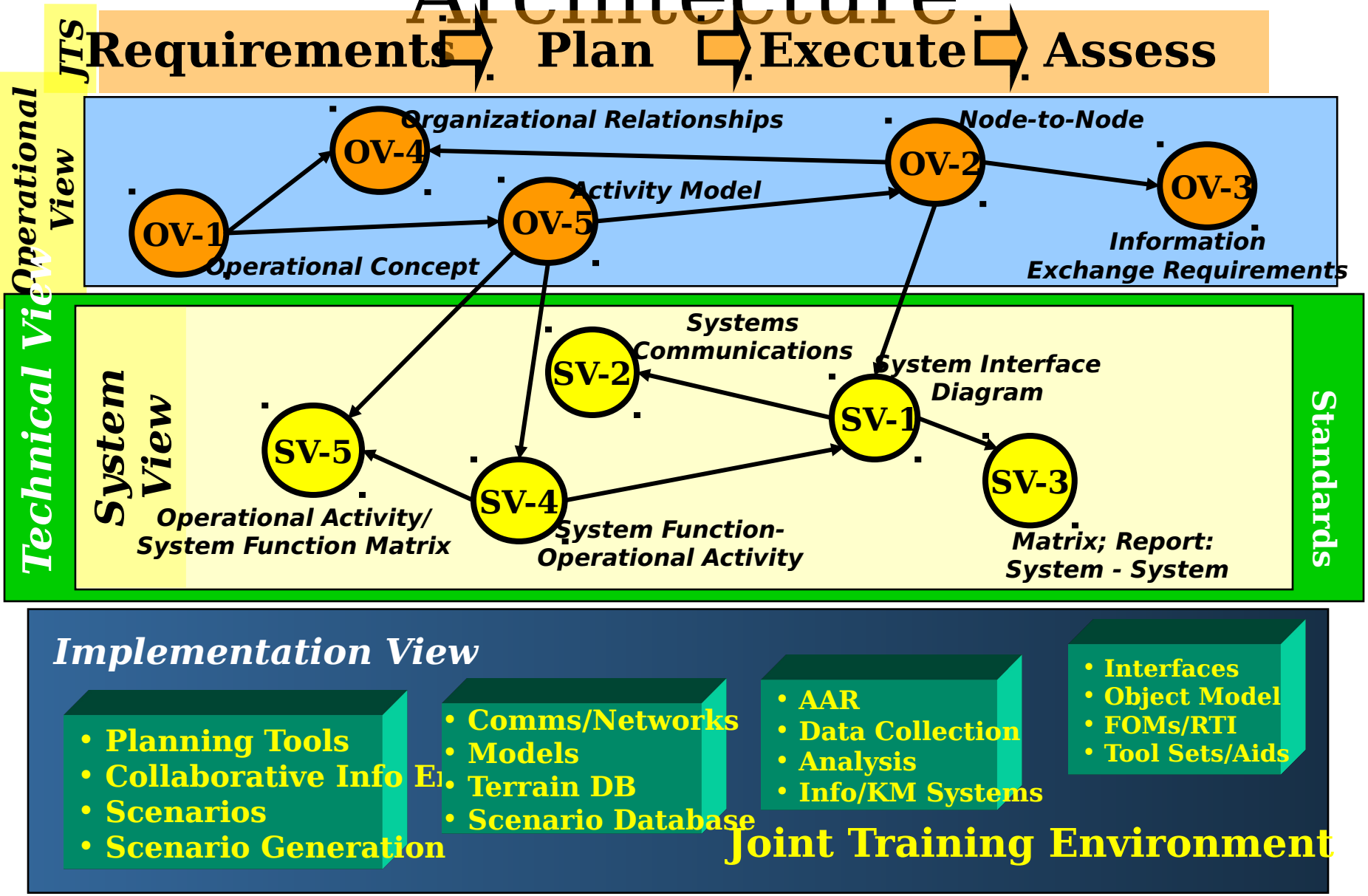



**Existing & Planned Service, COCOM & JFCOM Capabilities**

# Think Big, Start Small, Evolve



# JNTC Common Architecture



# LVC Development Strategy

***Discussion:***

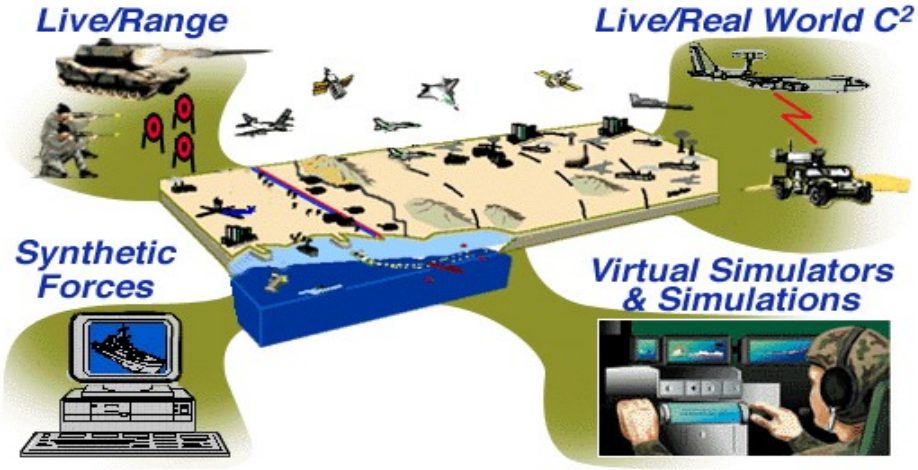
Need is for a cost effective and realistic LVC that supports current / future forces and doctrine from tactical to strategic.

Seamless environment across LVC.

Current Service / Joint LVC capabilities and initiatives (e.g., USN/USAF DMT, JSB/DMO).

Current DoD, Service and Joint M&S standards.

Operational requirements and exercise design are primary drivers in deriving technical requirements and solutions.




***Development of Joint synthetic environment (LVC) in support of training and experimentation***

***Way Ahead:***

- Capture Joint Op Requirements.
  - Training Exercise Design (LVC interaction matrix).
  - JTT Operational Architectures.
  - Experimentation requirements.
- Capture existing / planned capabilities.
- Map capabilities to operational requirements.
- Gap analysis -> new developments.
- Define / deploy Joint Standards & Architectures.
- Certification criteria.
- Refine prototyping insertion/experimentation into training and exercises
- Develop overall LVC roadmap based on Joint / Service M&S strategies.
- Develop interoperable building blocks.

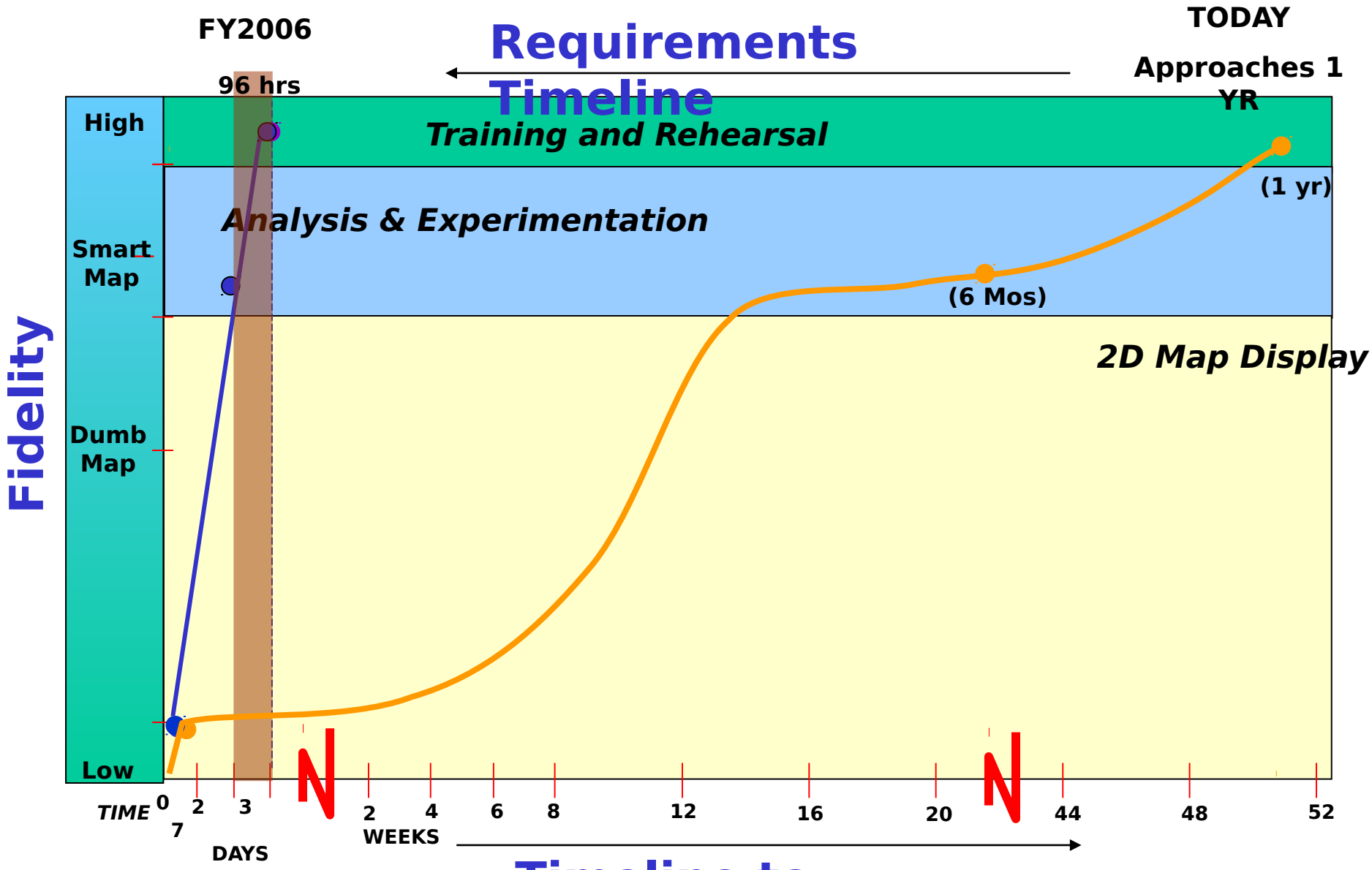
I'LL DESIGN THE SYSTEM AS SOON AS YOU GIVE ME THE USER REQUIREMENTS.
www.dilbert.com scottadams@aol.com
BETTER YET, YOU COULD BUILD THE SYSTEM, THEN I'LL TELL YOUR BOSS THAT IT DOESN'T MEET MY NEEDS.
© 2003 United Feature Syndicate, Inc.
I DON'T MEAN TO FRIGHTEN YOU, BUT YOU'LL HAVE TO DO SOME ACTUAL WORK.
THAT'S CRAZY TALK.

Copyright © 2003 United Feature Syndicate, Inc.

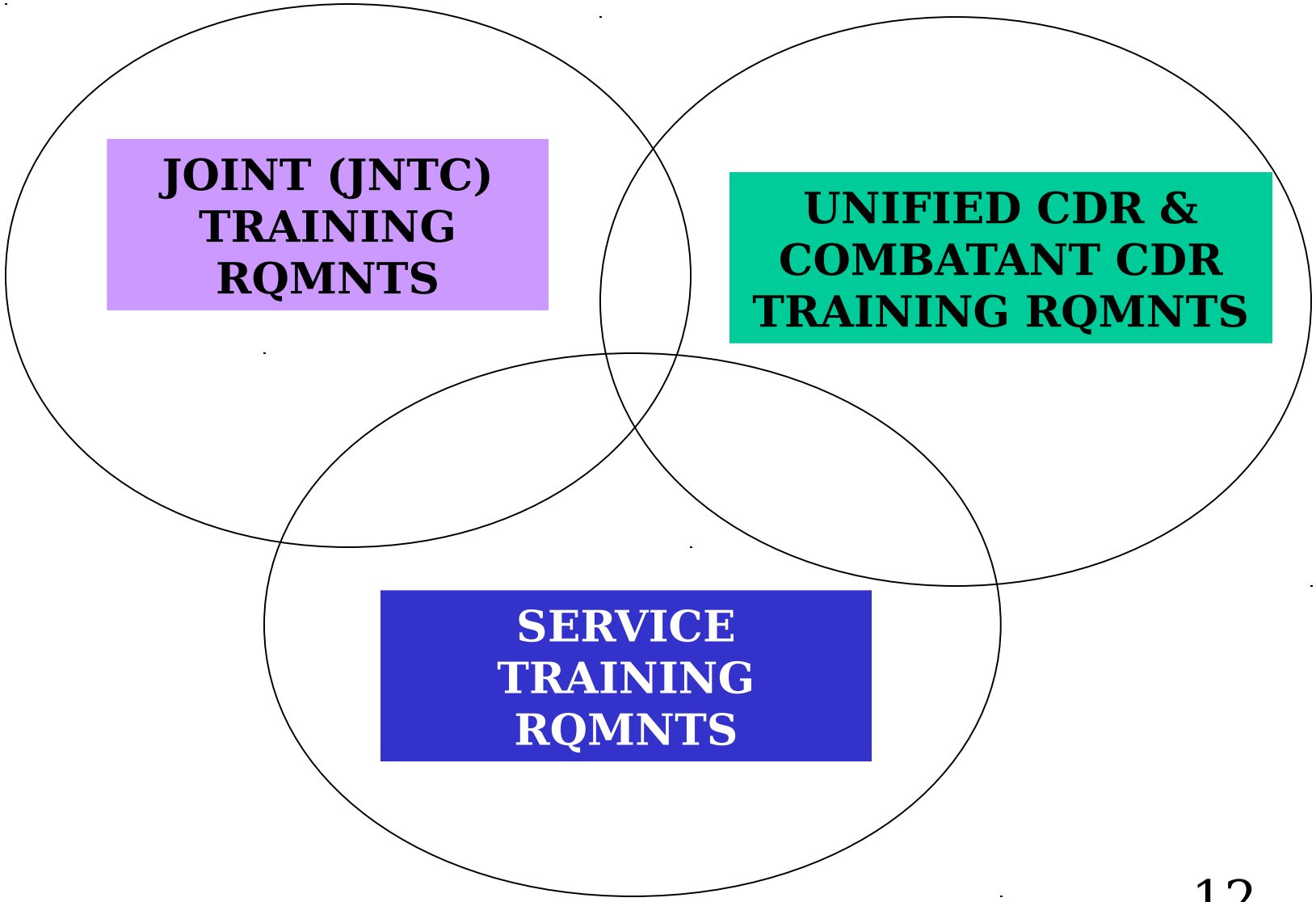
# Requirement Background

- Current training and experimentation event production process is complex and labor intensive
- There is a well established requirement for rapid, simulation training event production (e.g. ≤ 96 hours)
- Obstacles to meeting requirement are primarily funding, policy and organizational issues, not state of technology
- Joint Forces Command has key role and requirement:
  - To provide rapid production capability for Joint training simulation needs
  - To provide rapid distributed database production capability to meet Joint Training Requirements, Joint National Training Capability, and Distributed Continuous Experimentation Environment requirements
  - To provide rapid LVC federation database capability
    - **To enhance Joint Exercise support**
    - **Compatible with C4I databases**

# EVENT PRODUCTION PROCESS

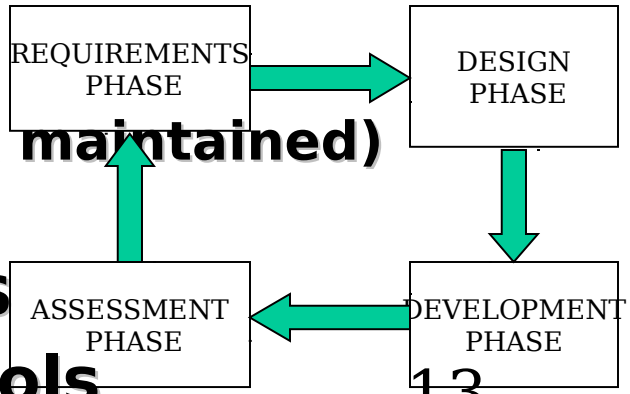


# M&S REQUIREMENTS DERIVATION



# Approach

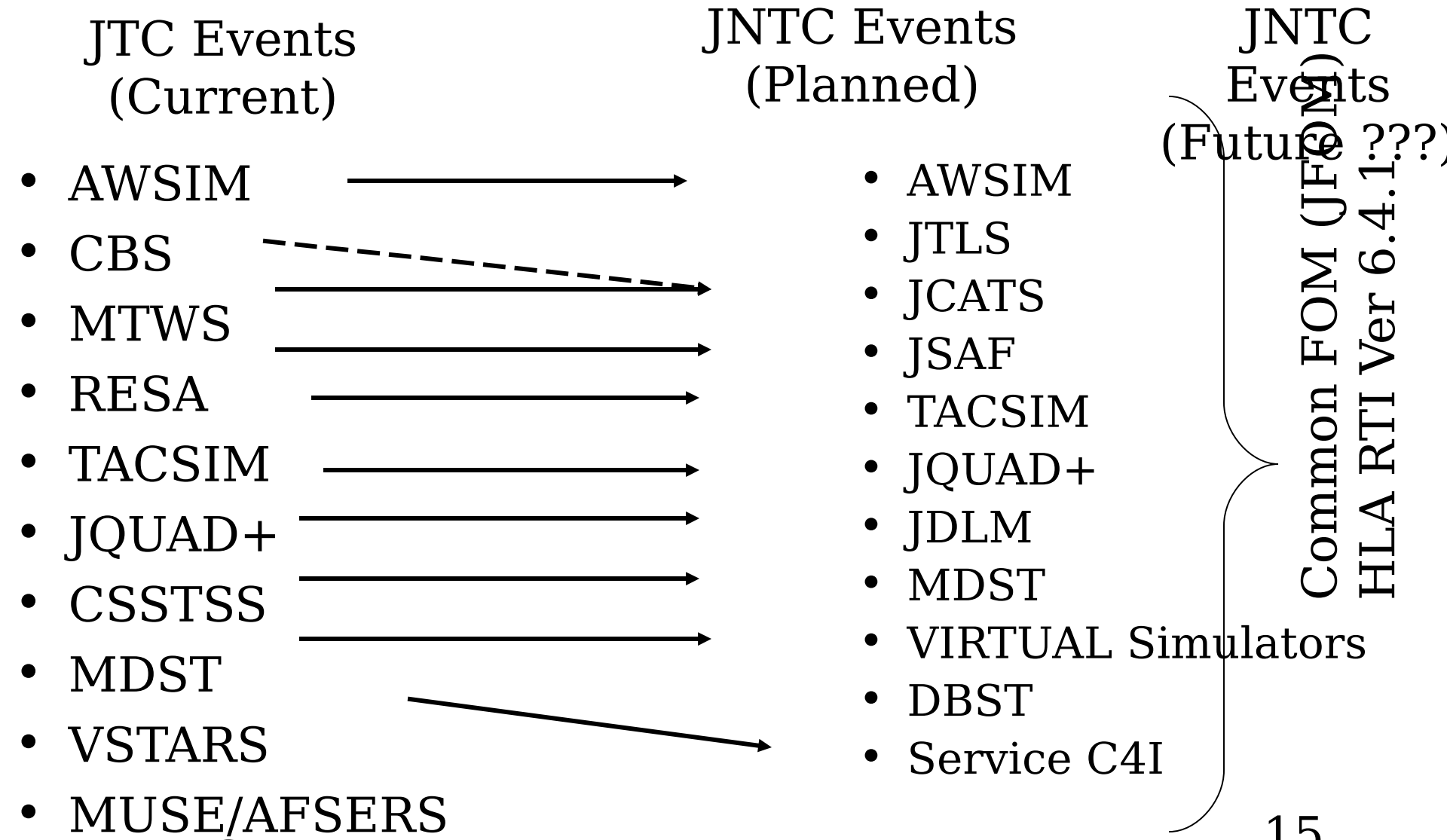
- **Identify stakeholders, users, sponsors, and technical knowledge base (leverage existing initiatives)**
- **Form joint integrated product and process improvement teams (funded to participate)**
- **Establish Mission Data Preparation (MDP) & RD3 performance standards & requirements**
- **Detail concept and define potential solution sets**
  - ✓ **Open architecture**
  - ✓ **Interoperable**
  - ✓ **Non-proprietary (Gov't owned & maintained)**
  - ✓ **Standardization**
  - ✓ **Policy/Advocate through EXCIMS**
- **Develop, Build, & Integrate Tools**
- **Execute & Assess**



# Standardization: The key component

- Standardization is a least-cost means of establishing interaction between stakeholders in a process (end game)
- Standardization requires compliance enforcement and quality assurance
- Specifications must be developed in the context of relevant standards, specs, and practices to be adopted
- Data specifications must:
  - Specify semantics and syntax for data information exchange
  - Define core or comprehensive “packaging” of source data
  - Expressed as a SISO, IEEE, or ISO Application Schema
  - Support usage in all Simulation, Management, and User interfaces
  - Facilitate automated harmonization, correlation, and mensuration

# Simulations



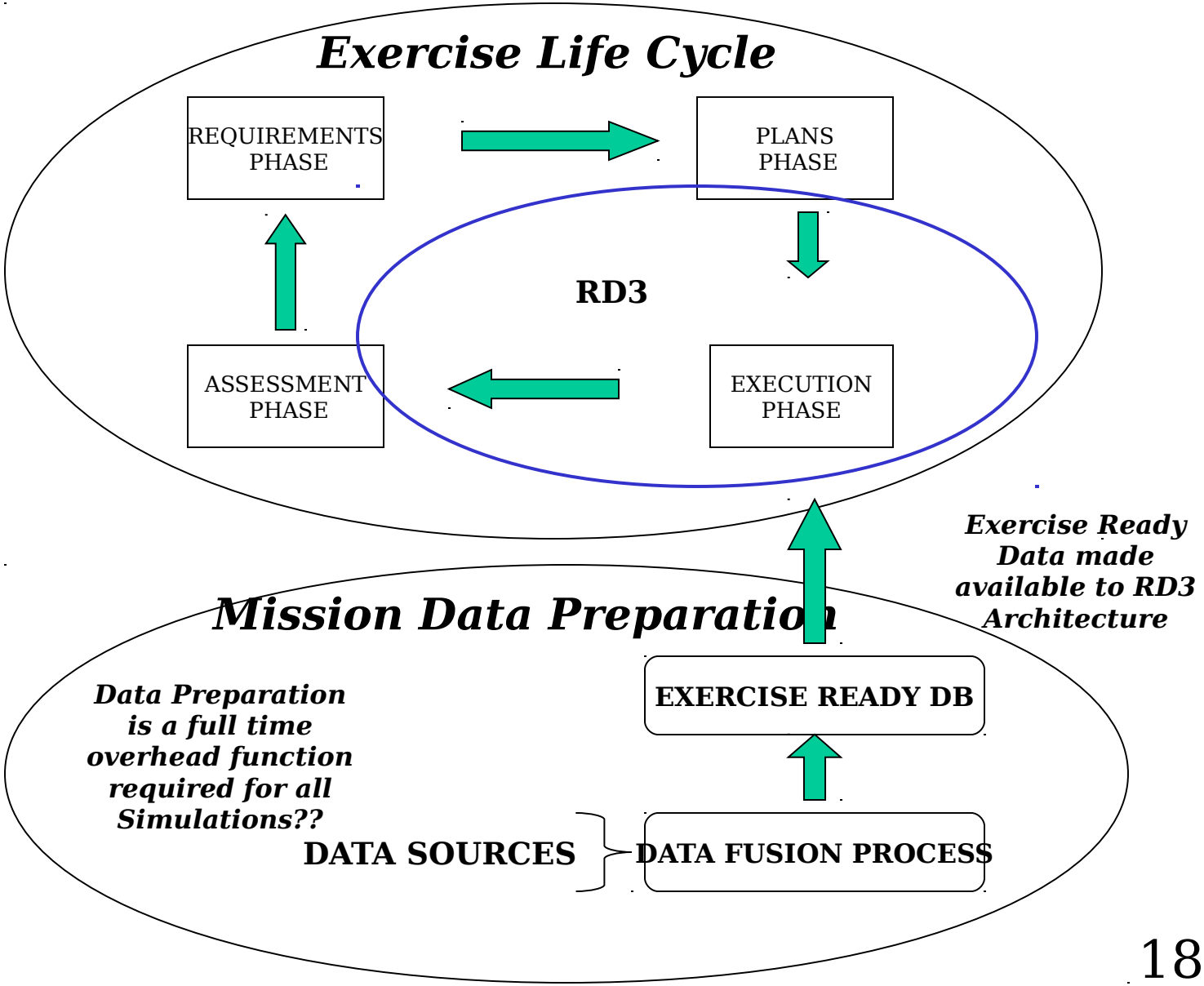
# Plan

- **RD3 Users Group Kick-off – 11 Sep 03**
- **Establish IPT's – 10 Oct 03**
- **Define and establish performance standards & requirements – 9 Jan 04**
- **Detailed execution plan, logistics plan, and architecture design concepts – 31 May 04**
- **RD3 architecture solution sets with recommendations – 30 Jun 04**
- **Preliminary prototype capability delivered to LVC test bed – 31 May 05**
- **FY05 – FY08 – Refine web enabled suite of tools and data to support MDP & RD3 architecture**

# Concept

- **Description – The Rapid Distributed Database Development process will provide a web-enabled architecture to support the preparation of near initialization ready data for live, virtual and constructive simulation events**
- **Purpose – Architecture is intended to reduce the overall level of effort and time required to generate and execute a training or experimentation event**
- **Benefit – Reduced cycle time and increased correlation will enhance the ability of joint simulation users to meet their planning, training and rehearsal requirements**

# DATA FEED INTO EXERCISE LIFE CYCLE



# MISSION DATA PREPARATION

***Data preparation benefits individual and Federated Simulations***

**RD3 XML SERVICES FRAMEWORK**

**Terrain**
**NIMA**
**USGS**

**Force Data**
**DIA**
**OSD**

**Targets**
**MIDB**
**DMPI**

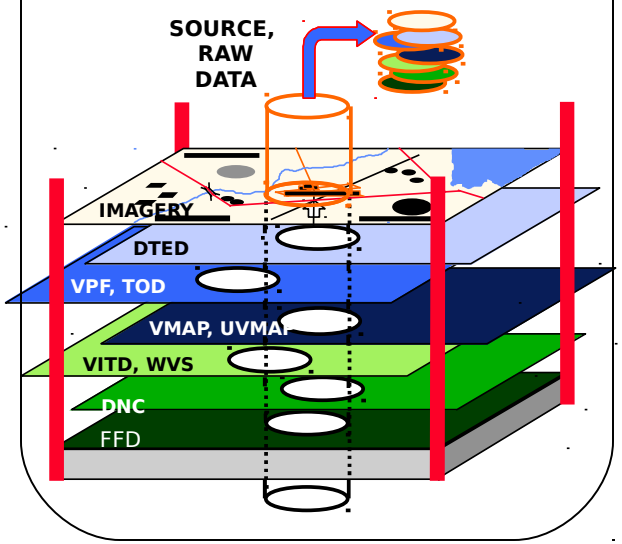
**Environmental**
**DOE/JTIC/**
**DISA/DTRA**

**EXERCISE READY DATA SERVERS**

**FORCE DATA SOURCES**
CFDB MIDB
UOB MTOE
COMBATANAT COMMANDERS

**TERRAIN & TARGET DATA SOURCES**

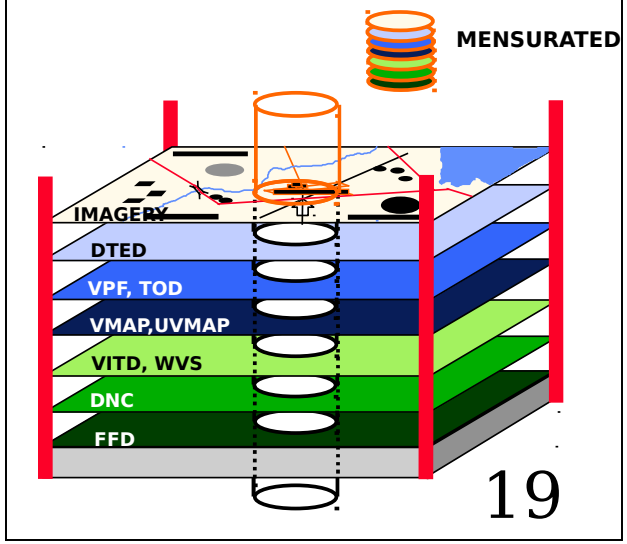
**ENVIRONMENTAL DATA SOURCES**




**Data Preparation**

Analyzed
Quality Assured
Corrected
Security filtered

**Subject Matter Experts**



Questions??